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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,218	01/16/2002	Valery M. Dubin	219.40227X00	4377

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EXAMINER	
EDWARDS, LAURA ESTELLE	
ART UNIT	PAPER NUMBER
1734	7

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/046,218	DUBIN ET AL.	
	Examiner	Art Unit	
	Laura E. Edwards	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *16-27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Election/Restrictions

Applicant's election of Group I, claims 1-15 in Paper No. 6 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1, 4, and 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Takeshita et al (US 6,248,168).

Takeshita et al teach a spray deposition apparatus comprising a processing chamber (340) having a cover (342) with the cover being movable between an open and closed position, the

closed position sealing the processing chamber for pressurization, an inlet to provide pressurizing gas or vapor to the chamber (351), an exhaust line (354) to exhaust pressurizing gas or vapor from the chamber, a pressure regulator or exhaust line valve (not numbered) to regulate pressure in the chamber, a sprayer (361) in the chamber for spraying a desired coating solution onto a substrate, and a drain (353) to drain the coating solution. Applicants' intended use of an electroless plating solution with the claimed apparatus has been given no patentable weight because a source or supply of electroless plating solution has not been positively recited in the body of the claim (see Fig. 26).

With respect to claims 10 and 11, see vacuum chuck (331) which inherently includes a vacuum passage to retain the substrate thereon.

With respect to claim 12, see other embodiment of Fig. 25 whereby edge cleaning spray nozzle (263) is incorporated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita et al (US 6,248,168) in view of Talieh et al (US 6,248,398).

The teachings of Takeshita et al have been mentioned above but Takeshita et al fail to teach or suggest the cover and chamber being sealed together via an o-ring. However, it was known in the coating art, at the time the invention was made to provide an o-ring (25) to effectively seal a cover to a substrate-processing chamber upon evacuation as evidenced by Talieh et al (see col. 3, lines 43-54). It would have been obvious to one of ordinary skill in the art to provide an o-ring as taught by Talieh et al disposed between the cover and chamber of the Takeshita et al apparatus in order to ensure a tight seal between the cover and chamber during evacuation and treatment of a substrate.

With respect to claim 9, Takeshita et al teach an exhaust line valve (not numbered) but are silent concerning the drain also having a valve. However, it was known in the art at the time the invention was made, to provide an exhaust line valve and a drain valve on an evacuated type coating processing chamber in order to facilitate regulation of the pressure in the processing chamber as evidenced by Talieh et al (see col. 5, lines 11-40). It would have been obvious to one of ordinary skill in the art to provide an exhaust line valve and drain line valve as taught by Talieh et al in the Takeshita et al apparatus in order to maintain pressure control within the processing chamber. Furthermore, it would have been common sense to one of ordinary skill in the art to provide a valve on both the exhaust line and drain line in the Takeshita et al apparatus in order to enable a sealed chamber vacuum environment for processing the substrate.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita et al (Us 6,248,168) in view of Stevens (US 6,451,114).

The teachings of Takeshita et al have been mentioned above but Takeshita et al fail to teach or suggest the sprayer being a spray bar or showhead. However, it was known in the coating art, at the time the invention was made, to provide in an evacuated type coating processing chamber, an elongated sprayer head including a single slot or plural apertures of various shapes to provide a desired distribution of coating solution over the surface of a substrate as evidenced by Stevens (see col. 7, lines 2-12). It would have been obvious to one of ordinary skill in the art to provide the elongated sprayer head or bar as taught by Stevens in the apparatus of Takeshita et al in place of the non-elongated sprayer in order to provide a desired distribution of coating solution over the entire width or diameter of a substrate.

Claims 1, 4, 6-10, and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shacham-Diamand et al (US 6,065,424) in view of Takeshita et al (US 6,248,168).

Shacham-Diamand et al teach a spray deposition apparatus comprising a sealable processing chamber (40) and show in Fig. 2 a cover (not numbered), an inlet to provide pressurizing gas or vapor to the chamber (48), an exhaust line (34) to exhaust pressurizing gas or vapor from the chamber, a pressure regulator (50) to regulate pressure in the chamber, a sprayer (58) in the chamber for spraying a desired coating solution onto a substrate, and a drain (52) to drain the coating solution. Shacham-Diamand et al do not teach or suggest the cover being movable between an open and closed position, the closed position sealing the processing chamber for pressurization. However, it was known in the art at the time the invention was made

to provide in a spray deposition apparatus an automated cover movable between an open and closed position with the closed position sealing the processing chamber for pressurization as evidenced by Takeshita et al (see col. 30, lines 29-32 and col. 31, lines 26-27). It would have been obvious to one of ordinary skill in the art to provide the automated cover as taught by Takeshita et al in the Shacham-Diamand et al apparatus to facilitate sealing of the chamber for pressurization without the need of an operator.

With respect to claims 7, 8, and 13, see Shacham-Diamand et al, col. 6, lines 27-48.

With respect to claim 10, see Shacham-Diamand et al, turntable (56).

With respect to claim 14, Shacham-Diamand et al teach a processing chamber (40) having a cover (not numbered), means for pressurizing the chamber (46), means for regulating pressure in the chamber (50), and means for spraying (58) an electroless plating solution onto at least one substrate. Shacham-Diamand et al do not teach or suggest the cover being movable between an open and closed position, the closed position sealing the processing chamber for pressurization. However, it was known in the art at the time the invention was made to provide in a spray deposition apparatus an automated cover movable between an open and closed position with the closed position sealing the processing chamber for pressurization as evidenced by Takeshita et al (see col. 30, lines 29-32 and col. 31, lines 26-27). It would have been obvious to one of ordinary skill in the art to provide the automated cover as taught by Takeshita et al in the Shacham-Diamand et al apparatus to facilitate sealing of the chamber for pressurization without the need of an operator.

With respect to claim 15, see Shacham-Diamand et al, col. 6, lines 44-48.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shacham-Diamand et al (US 6,065,424) and Takeshita el al (US 6,248,168) as applied to claims 1, 4, 6-10, and 13-15 above, and further in view of Talieh et al (US 6,248,398).

The teachings of Shacham-Diamand et and Takeshita et al have been mentioned above but neither teach or suggest the chamber cover sealed to the chamber body via an o-ring. However, it was known in the art, at the time the invention was made, to provide an o-ring to effectively seal a spray/gas deposition chamber cover and chamber body for pressurization as evidenced Talieh et al (see col. 3, lines 45-7). It would have been obvious to one of ordinary skill in the art to provide an o-ring seal as taught by Talieh et al in the apparatus as defined by the combination above in order to effectively seal the chamber cover and chamber body for pressurization during processing of a substrate.

Claims 1-3 and 6-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shacham-Diamand et al (US 6,065,424) in view of Talieh et al (US 6,248,398).

Shacham-Diamand et al teach a spray deposition apparatus comprising a sealable processing chamber (40) and show in Fig. 2 a cover (not numbered), an inlet to provide pressurizing gas or vapor to the chamber (48), an exhaust line (34) to exhaust pressurizing gas or vapor from the chamber, a pressure regulator (50) to regulate pressure in the chamber, a sprayer (58) in the chamber for spraying a desired coating solution onto a substrate, and a drain (52) to drain the coating solution. Shacham-Diamand et al do not teach or suggest the chamber including at least one section movable between an open and closed position, the closed position sealing the processing chamber for pressurization. However, it was known in the art at the time

the invention was made to provide in a deposition processing chamber, an automated chamber body and stationary cover whereby the chamber body moves between open and closed positions as evidenced by Talieh et al (see col. 6, lines 65+ to col. 7, lines 1-2). It would have been obvious to one of ordinary skill in the art to provide an automated chamber body as taught by Talieh et al in the Shacham-Diamand et al apparatus to facilitate sealing of the chamber for pressurization without the need of an operator.

With respect to claim 3, even though Shacham-Diamand et al show a cylindrically shaped chamber body and cover, Shacham-Diamand et al do not teach an o-ring sealing the chamber body and cover. However, it was known in the art, at the time the invention was made, to provide an o-ring to effectively seal a spray/gas deposition chamber cover and chamber body for pressurization as evidenced Talieh et al (see col. 3, lines 45-7). It would have been obvious to one of ordinary skill in the art to provide an o-ring seal between the chamber body and cover in the apparatus as defined by the combination above in order to effectively seal the chamber cover and chamber body for pressurization during processing of a substrate.

With respect to claims 7, 8, and 13, see Shacham-Diamand et al, col. 6, lines 27-48.

With respect to claim 10, see Shacham-Diamand et al, turntable (56).

With respect to claim 14, Shacham-Diamand et al teach a processing chamber (40) having a cover (not numbered), means for pressurizing the chamber (46), means for regulating pressure in the chamber (50), and means for spraying (58) an electroless plating solution onto at least one substrate. Shacham-Diamand et al do not teach or suggest do not teach or suggest the chamber including at least one section movable between an open and closed position, the closed position sealing the processing chamber for pressurization. However, it was known in the art at

the time the invention was made to provide in a deposition processing chamber, an automated chamber body and stationary cover whereby the chamber body moves between open and closed positions as evidenced by Talieh et al (see col. 6, lines 65+ to col. 7, lines 1-2). It would have been obvious to one of ordinary skill in the art to provide an automated chamber body as taught by Talieh et al in the Shacham-Diamand et al apparatus to facilitate sealing of the chamber for pressurization without the need of an operator.

With respect to claim 15, see Shacham-Diamand et al, col. 6, lines 44-48.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents/publications disclose the state of the art with respect to liquid/gas deposition apparatus with chamber body and cover: Ting et al (US 6,017,437), Dordi et al (USPAP 2002/0043466), and Woodruff et al (US 6,080,291).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Edwards whose telephone number is (703) 308-4252. The examiner can normally be reached on M-Th/First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7115 for regular communications and Same as above for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Laura E. Edwards
Primary Examiner
Art Unit 1734

le
March 17, 2003